SCHOOL PSYCHOLOGY TRAINING IN TRAUMATIC BRAIN INJURY ASSESSMENT: CURRENT PRACTICES IN GRADUATE PROGRAMS

Thesis

Submitted to

The School of Education and Health Sciences of the

UNIVERSITY OF DAYTON

In Partial Fulfillment of the Requirements for

The Degree of

Educational Specialist in School Psychology

By

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Dayton, Ohio

December, 2015

SCHOOL PSYCHOLOGY TRAINING IN TRAUMATIC BRAIN INJURY

ASSESSMENT: CURRENT PRACTICES IN GRADUATE PROGRAMS

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ABSTRACT

SCHOOL PSYCHOLOGY TRAINING IN TRAUMATIC BRAIN INJURY ASSESSMENT: CURRENT PRACTICES IN GRADUATE PROGRAMS

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There is an identified need for more training and education in the area of traumatic brain injury (TBI) assessment; as such, it is necessary to examine how it is currently being addressed in school psychology graduate preparation programs. The present research study addressed the gap in current research regarding how TBI assessment is taught in school psychology graduate programs by gaining in-depth, qualitative information from current practitioners. Nine participants were interviewed to gain insight into their experience with TBI training in their graduate programs. The results provide insight into the current training models of graduate programs and feedback from early career professionals. Suggestions are made for school psychology graduate programs and for possible future research.

ACKNOWLEDGMENTS

I would like to thank my thesis chair, Dr. Susan Davies, along with the other members of my thesis committee, Dr. Elana Bernstein and Bobbie Fiori for their advice, support, and constant reminders to get things finished. I would also like to thank Dr. Deborah Ettel for her guidance in preparing this thesis.

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CHAPTER I

INTRODUCTION

Brain injuries—particularly concussions—have received a great deal of recent media attention (Zinser, 2011). Numerous popular media articles and news segments have recently focused on adverse outcomes of traumatic brain injuries (TBIs). It is reported that approximately 475,000 children (ages 0 to 19) sustain TBIs each year in the United States (Jantz & Coulter, 2007). Because TBIs can have different mechanisms of injury and affect different parts of the brain, they can result in deficits in multiple areas. A few of these include executive functioning, working memory, academic performance, and social interactions (Conklin, Salorio, & Slomine, 2008). These deficits can affect children both in and outside of the school setting.

School psychologists, as well as other mental health professionals, have indicated that they do not feel adequately prepared to identify and intervene with students who have sustained TBIs and would like to have received more training in TBI (Davies, 2012; Lung, 2007). One reason for this may be inadequate or inconsistent ways of training school psychologists in TBI assessment. Because students with a TBI have multiple complex issues, which can make the identification process difficult, adequate assessment is crucial. Unfortunately, a number of school psychologists receive limited TBI training in their graduate preparation programs (Davies, 2012).

School psychologists are in a prime position in schools to evaluate this student population because they receive extensive training in testing certain areas such as academic, cognitive, and adaptive behavior (Lewandowski, 2009). They also receive training in multiple areas of assessment and evaluation such as prevention, consultation, direct observation, and counseling. These skills could relate well to the types of assessments and training needed to better serve students who have sustained a TBI.

The present research addressed the gap in current research regarding how TBI assessment is taught at the graduate level in school psychology. Because of the identified need for more training and education in the area of TBI assessment, it is important to examine how this training is currently being addressed in graduate preparation programs. The purpose of this study was to examine and describe the techniques and measures school psychology graduate programs are teaching for the assessment of students with TBI.

CHAPTER II

LITERATURE REVIEW

The following review summarizes literature related to traumatic brain injury. Specific areas that will be addressed include: prevalence and classification of TBI, consequences of TBI, school and hospital-based assessment, TBI assessment techniques, interventions for TBI, school-based consultation for TBI, and graduate preparation of school psychologists in TBI assessment. Multiple TBI assessment areas will be covered including the multi-factored assessment, neuropsychological tests, and neuroimaging. Current graduate preparation of school psychologists in TBI assessment techniques will also be examined.

Prevalence and Classification of TBI

There are more than 1.7 million traumatic brain injuries in the U.S. each year; of these, 475,000 affect children ages 0-19 (Faul, Xu, Wlad, & Coronado, 2010). These TBIs can range in severity from mild (concussion) to severe (aneurism). The severity of a TBI is determined by the Glasgow Coma Scale (GCS). The GCS is a fifteen-point scale that measures the outcomes of brain injuries by examining motor response, verbal response and eye opening. TBIs are classified as either closed-head or open-head. A closed TBI is a head injury in which the skull was not punctured and the injury was caused by the movement of the brain with the skull. An open TBI is a head injury in

which the skull was penetrated by an object such as a bullet. Impairments can be seen in both types of TBI; however, different levels of severity of the TBI can lead to different types of impairments.

Consequences of TBI

Deficits for school-aged children who sustain a TBI may include neurological consequences including executive function deficits, academic deficits, and social and behavioral problems that can affect social relationships (Jantz & Coulter, 2007). These impairments can affect children in and outside of the educational setting. Latent deficits, such as diminished cognitive ability or behavioral differences, arising in late adolescence and adulthood can potentially affect all aspects of one's life (Noggle & Pierson, 2010).

Deficits from traumatic brain injuries differ with every injury because each injury is different. The most common deficits seen in children with a TBI are executive functioning, academic, and social deficits (Jantz & Coulter, 2007). Executive functions are the skills involved in mental control and self-regulation such as planning, organizing, working memory, and attention (Horton, Soper, & Reynolds, 2010). TBI can affect a child's executive functioning in a variety of ways including lowered self-control, emotional ups and downs, erratic behavior, decreased motivation, and difficulty planning (Center on Brain Injury Research and Training, 2007). One executive functioning skill affected by TBI is working memory. Working memory helps promote academic and cognitive skills, as well as mathematical reasoning and reading speed (Conklin, Salorio, & Slomine, 2008). Conklin et al. (2008) found that children with a TBI performed worse than non-injured peers on a working memory assessment. The authors also found

evidence that the severity of the TBI, lack of attention, and overall cognitive ability were predictors of working memory performance in children with TBI.

Another deficit of TBI is diminished academic performance. Unfortunately, the academic problems associated with TBI are often mistaken as general academic underperformance and not examined further. This mistake can lead to the child not receiving help for the true cause of the deficits (Jantz & Coulter, 2007). Children with TBI may experience headaches or have a slightly impaired visual field that could easily be overlooked by the classroom teacher. Academic performance can be affected by these symptoms, resulting from a difficulty paying attention to directions or instruction, as well as related physical ailments including nausea or fatigue (Jantz & Coulter, 2007). Insomnia and sleep disturbances also commonly affect children with a TBI (Beebe, et. al., 2007).

Social deficits are also common in children with a TBI. This may include deficits in social problem solving skills, which is the ability to solve problems in socially acceptable ways (Hynes, Stone, & Kelso, 2011). Children with TBI are more likely to experience social isolation, aggressive behavior, and feelings of victimization that can adversely affect their social development (Schilling & Getch, 2012). These students also tend to show emotion in more indirect, less positive, and less assertive ways than their non-TBI peers. For example, there is evidence that children with TBIs showed less advanced social problem-solving techniques based on their developmental level; their skills negatively impacted their academic and social outcomes (Janusz, Kirkwood, Yeates, & Taylor, 2002).

School and Hospital-Based Assessment

A successful hospital-to-school integration and consultation is important to lower the time needed for TBI rehabilitation (Lindsay, et. al., 2015). There is currently a disconnection between school- and hospital-based assessments and consultations for children who sustained a TBI (Decker, 2008). School psychologists are not typically well-trained in neuropsychological assessment (Decker, 2008), which is often the framework of assessment for TBI in rehabilitation settings. In order to effectively plan and consult with hospital-based clinicians, particularly for school re-entry, it can be argued that school psychologists should better understand what is involved with neuropsychological assessments so results may be more effectively used in the school setting. When improved consultation occurs, practitioners can promote a better multi-tiered learning environment within schools so that students receive the educational supports that they need based on the severity of their injury (Decker, 2008). This collaboration would benefit not only children with TBI, but also children with other disability categories since neuropsychology has relevance to them as well. This is exemplified in cases of attention deficit-hyperactivity disorder (ADHD) and autism—disorders in which hospital-based assessments are commonly used to help students in the school setting by giving school personnel more data about the child's symptoms and needs.

Increased neuropsychological knowledge and collaboration between hospitals and schools would help support all aspects of learning and treatment for children with physical and cognitive disabilities in the school setting (Cleary & Scott, 2011). Both school and hospital-based practitioners use a variety of assessments that measure multiple

areas of functioning. A better understanding of these assessments by both parties might aide in the development of interventions and supports in the school and at home. The benefits of neuropsychological services in schools, as well as in the hospital, for students, are plentiful, but the main benefit would be sustained advocacy from several stakeholders across multiple settings (Cleary & Scott, 2011).

This disconnect is not just a school psychology issue, but also a hospital-based neuropsychology issue as well (Ernst, Pelletier & Simpson, 2008). Most neuropsychologists based outside of the school system are not routinely trained on special education law and school-based procedures for identification of TBI under IDEA (Ernst, Pelletier & Simpson, 2008). The collaboration that is needed would be beneficial not only for school-based reports, but practitioner reports as well because data would be available from multiple settings and over a longer amount of time. Practitioners should note current Health Insurance Portability and Accountability Act (HIPPA) and The Family Educational Rights and Privacy Act (FERPA) laws, which state that parent permission is required to share any medical records or educational records.

TBI Assessment Techniques

Assessing children following a TBI is not as simple as going to the doctor to get a brain scan. Assessments are typically administered by physicians and/or neuropsychologists if the child was treated at a hospital or rehabilitation facility, but they also need to be done in the school setting to determine appropriate educational interventions and accommodations (Jantz, Davies, & Bigler, 2014). Student assessments should never rely solely on one test or measure; they should be multi-factored and include data from multiple settings to provide an accurate picture of how the TBI affects

the child (Center on Brain Injury Research and Teaching, 2007). It is also important to observe the student perform multiple tasks such as problem solving and time management. In TBI assessment, evaluators should also attempt to acquire student performance data from before the injury in order to have baseline data for comparison to post-injury data.

Multi-factored Assessment. The use of a multi-factored assessment for children with a TBI across multiple settings is essential in gathering reliable information about the child's post-TBI behaviors and symptoms (Gioia, 2009). The multi-factored assessment should include various methods of evaluation including standardized norm-referenced assessments, informal assessment, interviews (parent, teacher, and student), structured observations, and ecological assessments to obtain a clear picture of the possible areas of impact following the TBI. These assessments are most effective when conducted across multiple settings (hospital, school, and home) since it is crucial to be able to compare pre-injury and post-injury functioning of the child (Gioia, 2009). These assessments combine knowledge from multiple viewpoints and can shed light on different areas of concern that may not be obvious in all settings. For example, a child may express some symptoms in one setting (e.g., school) that s/he does not display in others (e.g., home).

Standardized norm-referenced assessments are an important component of a comprehensive TBI assessment. Norm-referenced refers to the ability to compare a student's skills to others in his or her age group. These assessment techniques can provide a good view of the child's current abilities in multiple areas including cognition, executive functioning, and adaptive ability. It is important to remember that information

from standardized norm-referenced assessments is valuable, but should not be the only form of data used to fully assess a child with TBI.

Informal assessment techniques can yield just as valuable data as standardized assessments (Coelho, Ylvisaker, & Turkstra, 2005). Popular informal assessment techniques include checklists pertaining to communication, social skills, or other types of behavior, as well as parent and teacher interviews. Teacher interviews can give a clear picture and analysis of how the student is performing throughout the school day, as well as any differences in behavior from before the TBI. Parent interviews are helpful for obtaining students' medical and developmental history (Jantz, Davies & Bigler, 2014). The medical history is essential for obtaining crucial information such as the date of injury and what caused the injury. Other information that can be obtained through medical history and developmental history interviews include whether or not the child has received any medical interventions after the TBI, if any medical treatment has been given/needed, and if there were any developmental concerns before the TBI occurred that could impact their current performance in the school setting.

Structured observations are an important part of an effective multi-factored assessment. These observations should occur in a variety of settings including formal (e.g., classroom) and informal (e.g., lunch, recess, etc.) (Center on Brain Injury Research and Training, 2007). Structured observations add real-life data to the multi-factored assessment and certain things should be looked for including the child's self-regulation of affect, problem solving strategies, time management, and flexibility when switching from one task to another. It is always important to know how the child was performing prior to the TBI for comparison.

Ecological assessment (i.e., assessment across different environments to see how the child functions in them) is important in evaluating how the child is functioning across multiple settings and environments. The parents may not have behavioral concerns at home; however, the child's behavior at school may be quite different and adversely affect educational performance.

Standardized Assessment Measures. School psychologists, school personnel, and medical professionals use a variety of standardized assessment measures to assess children for possible TBI and functioning after the injury. These standardized assessments can include neuropsychological tests, neurological tests, criterion-rated tests, cognitive tests, and rating scales. One of these tests is called *discourse analysis*. The purpose of discourse analysis is to detect cognitive and communication deficits in individuals after a TBI (Coelho, 2007). Because individuals with a TBI often have communication deficits as a result of lowered cognitive functioning, this type of analysis of discourse in communication is used to measure deficits in the areas of attention, memory, and executive functioning (Coelho, 2007). This assessment is performed by analyzing a structured conversation and looking for subtle communication errors (Coelho, 2007).

The King's Outcome Scale for Childhood Brain Injury (KOSCHI; Paget, Beath, Barnes & Waugh, 2012) is a rating scale that evaluates child outcomes following a TBI (Paget, Beath, Barnes & Waugh, 2012). This measure is an adaptation of the Glasgow Outcome Scale (GOS) used to assess adults after a TBI and is given to the child by a medical professional. It is used primarily to place the child in one of the following categories: dead, vegetative, severe disability, moderate disability, good recovery, or

intact recovery. The test's inter-rater reliability and ease of interpretation indicate that this assessment can be given by professionals with varying levels of training and still be valid (Paget, Beath, Barnes & Waugh, 2012). The KOSCHI can be used multiple times over a given period of time to check for worsening symptoms and TBI symptom progression (Paget, Beath, Barnes & Waugh, 2012).

Another commonly used standardized measure to detect executive functioning deficits is the Behavior Rating Inventory of Executive Function (BRIEF; Gioia, Isquith, & Kenworthy, 2000). This test is used to assess children for TBI and yields mean and standard deviation standard scores (Donders, DenBraber & Vos, 2010). The BRIEF was designed to assess executive functioning in the home and at school by utilizing a rating scale. Donders, DenBraber and Vos (2010) found that the BRIEF has valid construct validity when assessing children with TBI and comparing them to non-injured peers. The authors also note that those interpreting BRIEF results should take the child's history prior to the TBI into consideration, especially in cases where ADHD and other behavioral difficulties were present prior to the injury (Donders, DenBraber & Vos, 2010). It is important to note that the use of rating scales alone is not a valid form of assessment; data from multiple methods including standardized assessments, ecological assessments, and direct observations across multiple settings is the most effective way of assessing children with a TBI (Gioia, 2009).

The Pediatric Test of Brain Injury (PTBI; Hotz, Helm-Estabrooks, Nelson & Plante, 2009) is a criterion-referenced test that examines multiple developmental abilities including attention, processing speed, memory, language, and executive function skills (Hotz, Helm-Estabrooks, Nelson & Plante, 2009). The PTBI consists of multiple subtests

used to assess a child's functioning; the neurocognitive ability and language subtests were designed to examine student performance in the school setting, particularly after a TBI (Hotz, Helm-Estabrooks, Nelson & Plante, 2009). The PTBI can be used as a baseline collection tool as well as for tracking recovery, intervention strategizing, and preparing students for school reentry.

The Dynamic Occupational Therapy Cognitive Assessment for Children (DOTCA-Ch; Katz, Parush, & Traub Bar-Ilan, 2005) is a standardized assessment tool used by occupational therapists to evaluate cognitive abilities and learning potential in children (Katz, Golstand, Bar-IIan & Parush, 2007). The DOTCA-Ch uses multiple subtests to look at the cognitive domains of orientation, spatial reasoning, praxis, visiomotor construction, and thinking operation. An examination of the psychometric properties of the DOTCA-Ch by Hotz, Helm-Estabrooks, Nelson & Plante (2009) indicates that it has high reliability and validity in determining the cognitive functioning of children. When tested on students with TBI, results show a significant difference between children without a TBI and those with a TBI in all areas including timed-completion.

The Wechsler Intelligence Scale for Children, Fifth Edition (WISC-V; Wechsler 2014) is a commonly used standardized intelligence test for children (Wechsler et. al., 2014). It consists of multiple subtests that evaluate verbal comprehension, perceptual reasoning, processing speed, and working memory (Rackley, Allen, Fuhrman & Mayfield, 2012). Some of the WISC-IV's subtests can identify the possibility of TBI in children, especially when there is a pattern of decreased performance and low

performance on visual-spatial, processing speed, and constructional assessments (Rackley, Allen, Fuhrman & Mayfield, 2012).

Neuroimaging. Current trends in TBI assessment techniques and processes are progressing rapidly with the innovation of new technology (Noggle & Pierson, 2010). Neurological testing using brain imaging such as fMRI, CT scans, and PET scans are rapidly increasing in use and changing the way we assess and treat individuals who sustained TBIs. Neuroimaging is an important tool because it can not only determine the severity of the injury and whether medical intervention is needed, but also identify where the injury occurred. Neuroimaging can provide more information when interpreting educational and other variables relevant to school-based assessment of children with a TBI (Jantz & Bigler, 2014). Neuroimaging pictures and reports can be used by schools to aide in the development of educational interventions and accommodations because they may show the areas of the brain affected by the TBI (Davies, 2012). School psychologists can utilize this assessment tool by collaborating with the medical professionals who administer the tests to obtain these neuroimaging. This assessment tool can also be used to track changes in the injury over time and can aide in the recovery process.

Interventions for TBI

Accurate assessment data can facilitate the selection of appropriate interventions for presenting problems associated with TBI. There are common intervention strategies to help children with TBI succeed in the school environment, as well as in a well-planned school re-entry and at-home interventions (Olsson et. al., 2014). When a child is ready to re-enter the classroom after sustaining a TBI, teachers and other school personnel should

be ready to properly assess for deficits and have coursework accommodations ready to help the transition process (Arroyo-Jurado, 2008). The Individual Education Program (IEP) is one of the most common ways to help these children succeed because it tailors interventions to their individualized needs and provides them with either partial or full special education services. Task analyses--analysis of how a task is accomplished--for everyday tasks should be completed to be sure that the child is capable of accomplishing school work following a TBI. For behavior concerns, positive reinforcement and a focus on appropriate behaviors are effective strategies for managing chronic behavioral deficits caused by the TBI (Arroyo-Jurado, 2008).

Consultation in TBI

A key part of effective consultation involves clearly communicating assessment results to parents, teachers, and students. To help manage the behavior and academic difficulties that students with a TBI often display, educators and school psychologists should have a planned strategy (Glang et. al., 2010). Educators can learn how to help these students through in-services and professional development on TBI. There are currently two models of professional development that have demonstrated effectiveness in training educators to work with students with TBI. One of these models is the TBI consulting team model; the other is called BrainSTARS.

One of the reasons the TBI consulting team model was created was to help school-based professionals increase their knowledge about TBI and how to help students after TBI was included as a disability category under IDEA. This model is based on the creation of a group of qualified consultants to provide in-service training and serve as liaisons to schools when information is needed (Glang et. al., 2010). Training consists of

different topic phases including learning the effects of TBI, intervention strategies, and ways to improve student outcomes. These training sessions typically occur over a six to twelve month period and include 40 hours of training. Research and program evaluations show that educators feel more prepared to effectively work with this population after the training sessions (Glang et. al., 2010).

The Brain Strategies for Teams and Reeducation for Students (BrainSTARS) method of training is a manual-based intervention (Dise, Calvery, & Lewis, 2001). The goal of BrainSTARS is to educate parents and educators about the underlying aspects of a TBI and the related, observable behavioral deficits. The program also provides training regarding accommodations and intervention strategies to improve student performance and outcomes (Glang et. al., 2010). This program was designed as a primary instruction manual or to be used in a team setting. Evidence shows that this model is more effective in improving educator knowledge of TBI and intervention strategies, as well as in the observation of behavioral signs of TBI when compared to other models of training (Glang et. al., 2010). Both BrainSTARS and the TBI consulting team models require additional research to demonstrate their effectiveness at improving student outcomes following a TBI.

Graduate Preparation of School Psychologists in TBI Assessment

The preparation of school psychology graduate students in neuropsychology and traumatic brain injury is an important issue for many school psychology advocates and training personnel. School psychologists will encounter students with TBI while working in the school setting and these students need to receive adequate support. Traumatic

brain injury (TBI) was designated a disability category under the Individuals with Disabilities Education Act (IDEA) in 1991. According to IDEA, a TBI is defined as:

> "...an acquired injury to the brain caused by an external physical force, resulting in total or partial functional disability or psychosocial impairment, or both, that adversely affects a child's educational performance. The term applies to open or closed head injuries resulting in impairments in one or more areas, such as cognition; language; memory; attention; reasoning; abstract thinking; judgment; problem-solving; sensory, perceptual, and motor abilities; psycho-social behavior; physical functions; information processing; and speech. The term does not apply to brain injuries that are congenital or degenerative, or to brain injuries induced by birth trauma." [34 Code of Federal Regulations §300.8(c)(12)]."

Previous research showed that school psychologists were not adequately trained on how to properly assess for this disability category (Walker, 1999). Walker found that only half of the school psychology graduate preparation programs surveyed prepared their students to administer neuropsychological assessment methods and only 15% of graduate students had opportunities to work with children with TBI in the school setting. This is troublesome given the large number of children that acquire a TBI each year (Fowler & McCabe, 2011).

There is currently limited research examining the training of school psychology graduate students in the assessment of TBI. Walker (1999) found this deficit in training through surveying school psychology graduate programs in the United States and it appears that this deficit still exists based on recent research. For example, a recent study reported that school psychology graduate programs lack appropriate TBI content

coverage (Davies, 2012). Further, current school psychologists, as well as other mental health professionals, have indicated that they would have liked more training in TBI during their graduate training (Lung, 2007).

Walker (1999) revealed that only 23% of programs surveyed required a comprehensive course in neuropsychology; the programs that did require it primarily focused on general neuropsychology, characteristics, and effects of brain injury. These courses did not specifically emphasize assessment, interventions, and placement issues. The lack of instruction on TBI assessment found in Walker's study supports the need for the present study to identify the current TBI assessment techniques taught in school psychology graduate programs. There are currently guidelines by the National Association of School Psychologists (NASP) requiring accredited programs to prepare graduate students to use multi-method/multi-source assessment techniques along with research-based interventions and consultation to identify educational problems (2010). Coursework at the graduate level primarily categorizes TBI as a low-incidence disability category and graduate programs do not dedicate as much instruction on TBI compared to other high incidence disabilities and this may result in a lack of knowledge among school psychologists about how to identify and assess this group of students.

School psychologists are essential members of school-based teams that identify and assess the needs of students with TBI. School psychologists currently receive extensive training in standardized cognitive, academic, and behavioral assessments, yet these assessments alone may not be sensitive enough to identify potential neuropsychological problems brought on by a TBI (Lewandowski, 2009). Children with TBI often exhibit "spotty" results on standardized tests that can give the appearance that

the student falls in the average range. Also. The negative effects of a TBI acquired at a younger age may not become apparent or affect the child until later in life when planning and organizing skills are needed (Jantz, Davies, & Bigler, 2014). School psychologists are also generally well-trained in the multi-factored assessment and evaluation process. Unfortunately, the multi-factored assessment that is currently taught in school psychology graduate preparation programs does not specifically address the special considerations needed to assess and evaluate children with TBI (Davies, 2012).

The Present Research Study

The present research study addresses the gap in current research regarding how TBI assessment is taught at the graduate level in school psychology. Given the identified need for more training and education in the area of TBI assessment, it is important to examine how it is currently being addressed in graduate preparation programs. The purpose of this study was to determine the techniques that school psychology graduate programs are teaching to assess for TBI. Because a significant part of TBI assessment is standardized neuropsychological testing, this study will specifically examine the training of school psychologists in neuropsychological test administration and interpretation. Different training techniques and requirements will be examined, including: whether the graduate program requires their trainees to work with a student with TBI, related practicums associated with their classwork, and training in TBI using neuropsychological tests. Finally, an examination of how current school psychology trainees demonstrate knowledge in TBI assessments will be included.

CHAPTER III

METHOD

Research Questions

The current study examined the following research questions: (1) How are school psychology graduate programs teaching TBI assessment to school psychology graduate students? and (2) What specific assessment measures and tests are graduate programs teaching for the school-based assessment of TBI?

Research Design

A qualitative research design was used to explore how school psychology graduate programs are teaching TBI assessment to current school psychology graduate students. A qualitative research design is one that is designed to provide an in-depth description of a specific program, practice, or setting (Mertens, 2010). In the current study, an in-depth analysis of the practices of school psychology graduate programs with regard to TBI assessment was examined. Previous studies on this topic have utilized a survey design but it is believed that by using a qualitative approach, more in-depth information could be obtained. By using a qualitative design, the researcher can analyze the data to make sense of the situation without imposing hypotheses or expectations to the data that is gathered (Mertens, 2010).

This study used a grounded theory approach to collect and analyze data. According to Puoakka (2011), grounded theory can be described as a systematic method of collecting and analyzing data with the purpose of generating a theory to describe what is seen. The aim of grounded theory is to make empirical information more accessible and to generate a theory that makes people aware of their actions (Puoakka, 2011). When using a grounded approach, the researcher usually begins by making observations and generating patterns to ultimately categorize the data during analysis and generate conclusions (Mertens, 2011). The present study sought to identify the current approaches by which TBI assessment is taught in school psychology graduate programs, as well as the techniques used to teach it to the current trainees (i.e., is a related practicum associated with their classwork, do they engage in mock scenarios, or are they are trained in an assessment in the context of TBI?). Therefore, grounded theory was the appropriate choice for the current study given that the goal is to expand the knowledge of how TBI assessments are currently being taught.

Participants and Setting

The participants in this study were initially planning to be school psychology program coordinators. However, due to a lack of responses from potential interviewees, the participants shifted to practicing school psychologists. This allowed for a candid perspective from those that had gone through school psychology training programs.

Participants in this study included nine recently graduated (approximately ten years out of graduate school) school psychologists who graduated from NASP approved graduate programs from across the midwest United States. Additional participants were to be sought if new themes continued to emerge with each interview. When the data

reached a point of saturation, or no new information was being gathered or heard, the interviews were finished.

Participants were recruited by researching multiple school websites from across the country and through suggestions from current graduate trainers. Participants were invited to participate in the interview via email. Participants were not excluded based on race, ethnicity, gender, or socioeconomic status. The researcher conducted the interviews by phone using a semi-structured interview guide.

Participant one, "Sally", graduated in 2009 with an educational specialist degree in school psychology. She attended graduate school in Pennsylvania. Participant two, "Jessica", graduated in 2009 with an educational specialist degree in school psychology. She attended graduate school in Pennsylvania. Participant 3, "Sarah", graduated in 2013 with a doctoral degree in school psychology. She attended graduate school in Michigan. Participant four, "Steve" graduated in 2003 with a doctorate in school psychology. He attended graduate school in Pennsylvania. Participant five, "Macie", graduated in 2012 with an educational specialist degree in school psychology. She attended graduate school in Ohio. Participant six, "Lynn", graduated in 2008 with a master's degree in school psychology. She attended graduate school in Pennsylvania. Participant seven, "Cheryl", graduated in 2011 with an educational specialist degree in school psychology. She attended graduate school in Ohio. Participant eight, "Amanda", graduated in 2011 with an educational specialist degree in school psychology. She attended graduate school in Ohio. Participant nine, "Erin", graduated in 2011 with an educational specialist degree in school psychology. She attended graduate school in Ohio.

Materials

Interview Protocol. Semi-structured interviews (see Appendix A) were conducted to determine the TBI assessment techniques practitioners learned in their graduate programs. Questions were also asked about other low-incidence disability assessment techniques so the participant would not automatically believe they would not have enough knowledge to participate. The semi-structured interview protocol consisted of open-ended questions intended to explore the different types of TBI and low incidence disability assessments taught in school psychology graduate programs, as well as open-ended questions to address the methods and techniques by which the participants were taught these assessments in their graduate programs.

Procedures

Data Collection. After gaining Institutional Review Board approval, the researcher emailed prospective participants. Those who agreed to participate were sent a consent form and a copy of the interview questions by email to review in advance. Informed consent was collected verbally from all participants over the phone before the interview began and the participants were given a randomly chosen number to ensure confidentiality in the reporting of the data. All data collected was stored in a secure location by the primary researcher.

The interview process lasted between ten and twenty minutes and was conducted with one participant at a time. Demographic information was collected, including whether or not the participant's graduate program was accredited through the National Association of School Psychologists (NASP), American Psychological Association (APA), or another accreditation body. Data indicating the state in which their university

was located was also collected. Reliability and validity of the interview protocol are unknown because it was created for the present study. As such, the interview protocol was piloted before being administered for the study. The pilot participants included faculty in the researcher's school psychology graduate program and two current school psychologists. Formatting, wording, and length of the interview protocol was adjusted based on the results of the pilot testing. For example, the number of interview questions were decreased so that the interview was completed in approximately fifteen minutes, the interview questions were modified to make the interviewer's language more clear, and the questions were re-arranged to increase the natural flow of the interview.

During the interviews, the researcher recorded all answers by using an audio recording device so that the data could later be transcribed. The interviews lasted between ten and twenty minutes. Participants were informed that they could discontinue participation at any time without penalty. As a thank you for their participation, participants were offered a summary of the study results at the conclusion of the project, as well as a gift card to an online merchant.

Data Analysis. All interview sessions were transcribed from the audio recordings. The data from this study was qualitatively examined using a grounded theory approach. Using this approach, the researcher looked for themes and patterns that arose from the collected interview data. The transcribed data was used to examine the types of TBI assessment that are being taught, as well as the techniques that are used to teach these assessments to current school psychology trainees. The themes and patterns were organized and sorted using categorical coding methods.

CHAPTER IV

RESULTS

This thesis research project examined how school psychology graduate programs prepare trainees to serve children. This study used in-depth interviews with recently trained practitioners to examine how they were taught TBI assessment. There were two questions explored in this study:

1. How are school psychology graduate programs teaching TBI assessment to school psychology graduate students?
2. What specific assessment measures and tests are graduate programs teaching for the school-based assessment of TBI?

The interviews yielded qualitative data that was transcribed and coded for themes relating to both of the research questions. Upon reviewing the responses, four themes emerged when the data was analyzed and coded. The school psychologists who participated in the interviews indicated that (1) their training was not sufficient in TBI assessment procedures. Most of the participants' (2) graduate programs focused on standardized assessments, yet they often did not explain how to apply them to TBI. Training in TBI assessment (3) occurred during internship or outside of the graduate program, and (4) there was a general feeling of unhappiness regarding the amount of

training school psychologists received in graduate school to conduct an effective TBI assessment.

Emerging Themes

Lack of Training. The participants indicated that they did not receive the amount of training in TBI assessment in their training programs that they wanted and needed. Sarah stated, "I don't know that we necessarily talked about TBI really at all". Lynn stated, "Actually I don't think it was really covered at all, especially, I don't think I even knew what TBI was until internship". Participants described having to seek out TBI experience on their own, either during practicums or internships. Sally stated, "My training during graduate school did not prepare me for much. Everything I learned about TBI was on the job pretty much".

Most of the participants indicated that exposure to children with TBI was not a requirement during practicum or internship. Erin stated, "I don't know that they necessarily taught it, it was more just a discussion when we would discuss the thirteen different disability categories under IDEA. We kind of just went over the definition of what a Traumatic Brain Injury was and then the only teacher was reading some research articles related to TBI". The graduate programs that did teach TBI assessment lacked opportunities for students to demonstrate learned skills.

There was also consensus among participants that more needed to be taught about how to use the information gathered during the assessment to make informed TBI eligibility decisions. Sally stated, "This should be fairly quick because our graduate program did not have any assessment training about TBI or autism; it was all about learning disabilities. I only had one class about low incidence population but it was, you

know, not geared toward assessments it was more like identification, you know, talking about different disabilities and what certain disabilities look like". Participants believed that these changes and additions could be implemented within their graduate training programs without taking away from other topics that were covered.

Standardized Assessment Emphasized. A majority of graduate training programs put an emphasis on standardized assessments in their training. However, the focus of the standardized assessment courses was generally placed on measures of general intelligence and academic achievement. Sally stated, "It was all IQ and achievement testing and you know for like regular education students." When learning these assessments, participants indicated that they were generally taught in ways that related to higher incidence disabilities such as Specific Learning Disability and Cognitive Disability. The most common standardized tests mentioned were the Woodcock Johnson Test of Achievement, Woodcock Johnson Test of Cognitive Abilities, Wechsler Intelligence Scales for Children, and the Wechsler Adult Intelligence Scales.

The standardized tests were generally taught by practicing the assessments with other students or through group presentations. Cheryl stated, "We talked a lot about it and we did some research on it. I believe we talked about different assessments but I cannot remember them. From what I recall from my assessment class we talked about them briefly within groups". The group presentation methods discussed in the interviews were focused mainly on rating scales for behavior and social emotional processing. The participants indicated that these presentations focused on the basics of each measure and did not explain how they would apply when assessing children with a TBI. Sally stated, "There was a neuropsychological test that we taught the class but we did not have any

exposure to any kind of TBI assessment techniques or tools that would address it." Traumatic Brain Injury assessment with standardized tests was explained very minimally. The participants indicated briefly going over the Developmental Neuropsychological Assessment and the Behavior Rating Inventory of Executive Function, yet they stated that they were not taught how the data gathered from them would apply to a TBI assessment. Amanda stated, "In my internship I did use the BRIEF quite a bit, but not isolated to TBI students. A lot of the time with Other Health Impaired students as well".

TBI Experience Gained in Internship. The participants indicated that most of their experience and training with TBI assessment was gained through practicum and internship. Amanda stated, "It was very briefly covered, if at all. Anything I learned about TBI was mostly covered through my practicum and internship experiences". Sarah stated, "It was required that we take a neuropsychology class so we may have talked about TBI in that class but really my experience with, uh, TBI came in um practicum and internship settings." However, it was also noted that this varied greatly between each participant and also among the participant's classmates. Participants stated that it was up to them to seek out opportunities to work with students with TBI and gain assessment knowledge during their practicums and internships. Jessica stated. "We had practicum, you know, where we had certain types of cases that we had to get, like the one requirement was two neuropsych cases, so that could have been a TBI case, but it did not have to be a TBI case". Many of their graduate programs did not have a requirement to gain experience working with students with TBI; therefore, many students came out of their programs with little to no experience in TBI assessment. However, a few participants obtained practicum and internship experience in locations that focused on

low incidence populations and work with supervisors that specialized in TBI and other low incidence assessments. Jessica stated, "I saw some TBI stuff in my practicum but it was not a requirement of my graduate program".

Negative Feelings Toward Graduate Training. A common theme found with almost all of the participants was general negative feelings related towards their lack of training in TBI assessment. Participants desired to have more training in TBI assessment and noted that it would have helped them once they started working. Sarah stated, "I mean I really think that, you know, I'm happy with my program, I don't want to speak ill or anything, but um, a lot more of the training that I've had has been outside of the school and I wish there had been more covered." The participants who did have training in their graduate program stated that they were unhappy with the current options taught to them and would have preferred a more multi-factored approach been taught. Lynn stated, "It would have been nice to learn some of these assessments for TBI." These unhappy feelings were mostly toward their graduate programs and not at their practicum or internship sites. They felt generally unprepared to effectively work with students with TBI when they encountered them after having been in practice for a few years.

It is important to also note that even though these themes were identified based on the responses from the participants, there was also considerable variability in the types of methods and curriculum of the specific graduate programs discussed in the interviews. The graduate programs typically either touched on the topic of TBI assessment or left it out completely. Given this variability, it is still felt that theoretical saturation was reached. Overall, the general theme that was found was that there is not enough training in the area of TBI assessment within school psychology graduate training programs.

CHAPTER V

DISCUSSION

When school psychologists lack appropriate training in a topical area, it can adversely affect the children they serve. School psychologists cannot provide appropriate service delivery when they are not properly trained in how to assess a specific population of students they encounter in the school system. By finding out what school psychologist learn and don't learn in their graduate training programs regarding TBI assessment, trainers are better able to modify aspects of their training programs to meet the needs of an ever-changing field like school psychology. The purpose of this study was to examine the methods and techniques that were used to teach assessment for TBI by exploring the training of recent school psychology graduates.

Because the design of this study did not call for a hypothesis, the data gathered from this study should be used as information to analyze and consider possible changes to current school psychology graduate programs. The sample size of this study is of importance to note because the original research proposal included a larger number of participants to provide more information from various graduate programs. However, the small response rate inhibited the scale in which these results can be generalized. Previous research indicated that many school psychologists felt inadequately prepared to identify and intervene with students who have sustained TBIs (Davies, 2012). This study

provided more detailed information regarding what school psychologists learned in their graduate programs that might lead to the feelings of inadequate preparedness.

With the first theme, the participants indicated that they did not receive the amount of training in TBI assessment in their training programs that they wanted and needed. Consistent with the findings of Davies (2012) and Lung (2007), results indicate that there continues to be a general feeling of unpreparedness and inadequacy with the amount of graduate training involving TBI assessment and intervention. The participants explained that they had to seek experiences out on their own if they wanted to be exposed to cases that involved TBIs during their internship or while practicing in their school districts. Graduate programs could take this information as a recommendation by which to improve their current curriculum to match the needs of their recent graduate given what current practicing school psychologists are currently doing in practice.

With the third theme it was found that a majority of graduate training programs put an emphasis on standardized assessments in their training. Previous research suggested that standardized assessment was commonly used in the assessment of TBI (Gioia, 2009; Jantz, Davies, & Bigler, 2014). This is not necessarily a bad thing because standardized assessment can be an important tool when assessing students with a TBI. However, the participants indicated that their training focused on interpretation of the results being used for more common disability categories and not low incidence disability categories. Graduate programs could possibly include more instruction on how to use the standardized assessments that they are currently teaching in the assessment and identification of low incidence disabilities.

The second theme indicated that most of the participants' experience and training with TBI assessment was gained through practicum and internship. As stated above, there is a general consensus that there should be more graduate training for TBI assessment within actual school psychology graduate programs. The current perceived practice of leaving it up to the graduate trainee to find opportunities within their practicum or internship sites may result in many students missing valuable training because not all placements include the opportunity to work with students who have acquired a TBI. Graduate programs may consider requiring their trainees have a minimum one experience with a child with a TBI.

The fourth theme found that with almost all of the participants, there were general negative feelings related towards their lack of training in TBI assessment. Previous research touched on this subject and how school psychologists do not feel prepared to address the population of students (Davies, 2012; Lung, 2007). This should be concerning for graduate programs because their trainees represent the university in which they receive their graduate training. If these graduate trainees finish their training and enter the workforce feeling unprepared and unhappy with the amount of training they received, this could limit the number of new applicants and the reputations of the respective graduate training program. The field of school psychology is relatively small and graduate programs should want their programs to have a good reputation for providing exceptional training and meet the needs of their recent graduates.

Limitations

There were several limitations to the current research project. Because the study was qualitative, it examined the experience of a small number of practitioners, thereby

minimizing generalizability to all school psychologists and all school psychology graduate training programs.

The limited sample size in this study may have impacted the ability to capture all of the relevant themes related to their graduate training. Participants should be added to a qualitative study until a point of saturation in the gathered data occurs and this was not possible with the small response rate that was obtained with this particular study and participant pool. The major topic of TBI assessment may have also led to limitations in the study. The researcher attempted to account for this by focusing on low-incidence disabilities rather than traumatic brain injury so participants would not automatically believe they would not have enough knowledge to participate.

There were several perceived limitations in the research design. One perceived limitation is the number of participants who were willing to participate in these interviews. The original intent was to interview school psychology graduate program directors. However, this proved to be difficult when there was a zero percent response rate on two separate occasions to invite them to participate in the study which is why the sample population changed to recent graduate school psychologist. This could have limited the amount of data to use before reaching thematic saturation. Another limitation is that those who decided to participate in this study may have been those who have a vested interest in TBI and therefore allocate more time in their program to the topic, thus giving a biased view of assessment techniques.

Implications for Future Research

Future research on this topic could expand on the point that there is a need for more training on the various assessment procedures for children with traumatic brain

injuries. This study added to the current body of literature pointing to a lack of assessment training for school psychologists related to students with TBI. Future research might focus on what to do about the current lack of training in teaching professionals assessment and intervention for children who sustain a traumatic brain injury. Such research might address ways to create and facilitate meaningful change in the way school professionals are taught how to evaluate and serve children with traumatic brain injuries.

Implications for Practice

Current school psychology graduate programs and practicing school psychologists may want to learn more about what they can do to help guide their current practice related to the assessment of children with a TBI. It is important to remember that assessment of students with a TBI is not the same as assessment of students with a learning disability. These students may require assessment in more behavior and cognitive areas (Telzrow, 1991). School psychology programs should focus on this differentiation of assessment techniques when teaching their trainees about TBI assessment. There are many opportunities for current practicing school psychologists to receive training in TBI assessment and intervention strategies. Practicing school psychologists should reach out to their graduate training programs to let them know what areas of practice they feel that they did not receive adequate training so that changes can be made to the curriculum that is taught.

Conclusion

The present research study addressed the gap in current research regarding how TBI assessment is taught at the graduate level in school psychology. Given the identified

need for more training and education in the area of TBI assessment, it was important to examine how this training is currently being addressed in graduate preparation programs. Findings suggest that the graduate preparedness of school psychologists in this area varies greatly depending on the particular graduate program. Practicing school psychologists reported that their training was not sufficient in TBI assessment procedures.

The findings of this study also indicated that most of the participant's graduate programs focused on standardized assessments, yet they often did not explain how to apply them to assess students who acquired a TBI. Training in TBI assessment occurred during internship or outside of the graduate program and there was a general feeling of unhappiness regarding the amount of training they received to conduct an effective TBI assessment. After learning about these concerns through feedback from practicing school psychologists, graduate program faculty can learn about what is currently affecting children in schools and re-focus their training to meet the demands so all children can be better served within the school setting.

REFERENCES

Arroyos-Jurado, E., & Savage, T. A. (2008). Intervention strategies for serving students with traumatic brain injury. Intervention in School & Clinic, 43(4), 252-254.

Beebe, D. W., Krivitzky, L., Wells, C. T., Wade, S., Taylor, H., & Yeates, K. (2007). Brief report: Parental report of sleep behaviors following moderate or severe pediatric traumatic brain injury. Journal of Pediatric Psychology, 32(7), 845-850. doi:10.1093/jpepsy/jsm003

Center on Brain Injury Research and Training (2007). School-Based Assessment of Executive Functions. Retrieved on May 19, 2013 from http://cbirt.org/tbi-education/assessment-eligibility/school-based-assessment-executive-functions.

Cleary, M. J., & Scott, A. J. (2011). Developments in clinical neuropsychology: Implications for school psychological services. Journal of School Health, 81(1), 1-7.

Coelho, C. A. (2007). Management of discourse deficits following traumatic brain injury: Progress, caveats, and needs. Seminars in Speech & Language, 28(2), 122-135.

Coelho, C., Ylvisaker, M., & Turkstra, L. S. (2005). Nonstandardized assessment approaches for individuals with traumatic brain injuries. Seminars In Speech And Language, 26(4), 223-241. doi:10.1055/s-2005-922102

Conklin, H. M., Salorio, C. F., & Slomine, B. S. (2008). Working memory performance following paediatric traumatic brain injury. Brain Injury, 22(11), 847-857. doi: 10.1080/02699050802403565

Davies, S. C. (2012). School Psychology Programs: Graduate Preparation in Traumatic Brain Injury. Trainers Forum, 31(2), 5-16.

Davies, S. C. (2011). Concussion awareness: Getting school psychologists into the game. Communique, 39(7), 1,

Decker, S. L. (2008). School neuropsychology consultation in neurodevelopmental disorders. Psychology in the Schools, 45(9), 799-811. doi: 10.1002/pits.20327

Dise, J.E., Calvery, M.E. & Lewis, H.C. (2001). BrainSTARS Manual. Wake Forest, NC: Lash and Associates Publishing/Training.

Donders, J., DenBraber, D., & Vos, L. (2010). Construct and criterion validity of the behaviour rating inventory of executive function (BRIEF) in children referred for neuropsychological assessment after paediatric traumatic brain injury. Journal of Neuropsychology, 4(2), 197-209. doi: 10.1348/174866409X478970

Ehrenfors, R., Borell, L., & Hemmingsson, H. (2009). Assessments used in school-aged children with acquired brain injury - linking to the international classification of functioning, disability and health. Disability & Rehabilitation, 31(17), 1392-1401.

Ernst, W. J., Pelletier, S. L. F., & Simpson, G. (2008). Neuropsychological consultation with school personnel: What clinical neuropsychologists need to

know. Clinical Neuropsychologist, 22(6), 953-976. doi: 10.1080/13854040701676591.

Faul M., Xu L., Wald M., & Coronado V. (2010). Traumatic brain injury in the United States: emergency department visits, hospitalizations, and deaths. Atlanta (GA): Centers for Disease Control and Prevention, National Center for Injury Prevention and Control.

Fowler, M., McCabe, P. C. (2011). Traumatic brain injury and personality change. Communique. 39(7), 4-10.

Gerring, J. P., & Wade, S. (2012). The essential role of psychosocial risk and protective factors in pediatric traumatic brain injury research. Journal of Neurotrauma, 29(4), 621-628. doi:10.1089/neu.2011.2234

Gioia, G. A., Isquith, P. K., Schneider, J. C., & Vaughan, C. G. (2009). New approaches to assessment and monitoring of concussion in children. Topics in Language Disorders, 29(3), 266-281.

Giolia, G. A., Isquith, P. K., Guy, S. C., & Kenworthy, L. (2000). Behavior Rating of Executive Function. Lutz, FL; Psychological Assessment Resources.

Glang, A., Todis, B., Sublette, P., Brown, B. E., & Vaccaro, M. (2010). Professional development in TBI for educators: The importance of context. Journal of Head Trauma Rehabilitation, 25(6), 426-432. doi: 10.1097/HTR.0b013e3181fb8f45

Horton, J. M., Soper, H. V., & Reynolds, C. R. (2010). Executive Functions in Children with Traumatic Brain Injury. Applied Neuropsychology, 17(2), 99-103. doi:10.1080/09084281003708944

Hotz, G., Helm-Estabrooks, N., Nelson, N. W., & Plante, E. (in press). Pediatric Test of Brain Injury™. Baltimore: Paul H. Brookes Publishing Co., Inc.

Hotz, G. A., Helm-Estabrooks, N., Nelson, N. W., & Plante, E. (2009). The pediatric test of brain injury: Development and interpretation. Topics in Language Disorders, 29(3), 207-223. doi: 10.1097/TLD.0b013e3181b53198

Hynes, C. A., Stone, V. E., & Kelso, L. A. (2011). Social and emotional competence in traumatic brain injury: New and established assessment tools. Social Neuroscience, 6(5/6), 599-614. doi:10.1080/17470919.2011.584447

Individuals with Disability Education Act Amendments of 1997 [IDEA]. (1997). Retrieved from http://thomas.loc.gov/home/thomas.php.

Jantz, P. B., & Bigler, E. D. (2014). Neuroimaging and the school-based assessment of traumatic brain injury. Neurorehabilitation, 34(3), 479-492. doi:10.3233/NRE-141058

Jantz, P. B., & Coulter, G. A. (2007). Child and adolescent traumatic brain injury: Academic, behavioural, and social consequences in the classroom. Support for Learning, 22(2), 84-89. doi: 10.1111/j.1467-9604.2007.00452.x

Jantz, P. B., Davies, S. C., & Bigler, E. D. (2014). Working with traumatic brain injury in schools: Transition, assessment, and intervention. New York: Routledge/Taylor & Francis Group.

Janusz, J. A., Kirkwood, M. W., Yeates, K. O., & Taylor, H. G. (2002). Social problem-solving skills in children with traumatic brain injury: Long-term outcomes and prediction of social competence. Child Neuropsychology, 8(3), 179-94.

Katz, N., Parush, S., & Traub Bar-Ilan, R. (2005). The Dynamic Occupational Therapy Cognitive Assessment for Children (DOTCA–Ch) Manual. Pequannock NJ: Maddak.

Katz, N., Golstand, S., Bar-IIan, R., & Parush, S. (2007). The dynamic occupational therapy cognitive assessment for children (DOTCA-ch): A new instrument for assessing learning potential. American Journal of Occupational Therapy, 61(1), 41-52. doi: 10.5014/ajot.61.1.41

Lewandowski, L. J., & Rieger, B. (2009). The role of a school psychologist in concussion. Journal of Applied School Psychology, 25(1), 95-110. doi: 10.1080/15377900802484547

Lindsay S, Hartman LR, Reed N, Gan C, Thomson N, et al. (2015) A Systematic Review of Hospital-to-School Reintegration Interventions for Children and Youth with Acquired Brain Injury. PLoS ONE 10(4): e0124679. doi: 10.1371/journal.pone.0124679

Lung, D. (2007). The training needs of mental health practitioners in mild traumatic brain injury. Dissertation Abstracts International, 68.

National Association of School Psychologists (2010). Standards for graduate preparation of school psychologists, Retrieved May 19, 2013 from http://www.nasponline.org/standards/2010standards.aspx.

Noggle, C. A., & Pierson, E. E. (2010). The path ahead: Future trends in the assessment and treatment of TBI in the pediatric population. Applied Neuropsychology, 17(2), 123-124. doi: 10.1080/09084281003709009

Olsson, K., Kenardy, J. A., Brown, E. A., Charlton, E., Brown, F. L., Lloyd, O., & McKinlay, L. (2014). Evaluation of Parent and Child Psychoeducation Resources for the Prevention of Paediatric Post-concussion Symptoms. Brain Impairment, 15(3), 177-189. doi:10.1017/BrImp.2014.22

Paget, S. P., Beath, A. W. J., Barnes, E. H., & Waugh, M. (2012). Use of the king's outcome scale for childhood head injury in the evaluation of outcome in childhood traumatic brain injury. Developmental Neurorehabilitation, 15(3), 171-177. doi: 10.3109/17518423.2012.671381

Puolakka, K., Haapasalo-Pesu, K., Kiikkala, I., & Åstedt-Kurki, P. (2013). Using grounded theory to create a substantive theory of promoting schoolchildren's mental health. Nurse Researcher, 20(3), 22-27.

Rackley, C., Allen, D. N., Fuhrman, L. J., & Mayfield, J. (2012). Generalizability of WISC-IV index and subtest score profiles in children with traumatic brain injury. Child Neuropsychology, 18(5), 512-519. doi: 10.1080/09297049.2011.628308

Schilling, E. J., & Getch, Y. Q. (2012). Getting My Bearings, Returning to School: Issues Facing Adolescents with Traumatic Brain Injury. TEACHING Exceptional Children, 45(1), 54-63.

Taylor, H., Dietrich, A., Nuss, K., Wright, M., Rusin, J., Bangert, B., & ... Yeates, K. (2010). Post-concussive symptoms in children with mild traumatic brain injury. Neuropsychology, 24(2), 148-159. doi:10.1037/a0018112

Telzrow, C. (1991). The school psychologist's perspective on testing students with traumatic brain injury. Journal of Head Trauma Rehabilitation, 6 (1), 23-34.

Walker, N. W., Boling, M. S., & Cobb, H. (1999). Training of school psychologists in neuropsychology and brain injury: Results of a national survey of training programs. Child Neuropsychology, 5(2), 137-142.

Wechsler, (2014). Wechsler intelligence scales for children–fifth edition integrated. San Antonio, TX: NCS Pearson.

Zinser, L. (2011, October 7). Report Indicates an Increase in Concussion Awareness. New York Times. p. 17.

APPENDIX A

INTERVIEW PROTOCOL

(1) Was your school psychology program approved by the National Association of School Psychologists (NASP) or another accreditation body?

(2) What degrees did your program offer?

(3) How did your program teach TBI assessment to your graduate students?

(4) How did your program teach Autism assessment to your graduate students?

(5) What, if any, specific standardized assessments are taught in your program?

(6) What assessment tools were taught that discern whether a student has autism? TBI?

- Mention BRIEF, GARS, CARS, etc.

(7) How did you demonstrate knowledge of TBI assessments?

(8) How did you demonstrate knowledge of Autism assessments?

(9) Did you have the opportunity or a requirement to work directly with a student with TBI during practicum or internship? Autism? Other Low Incidence Disabilities?

APPENDIX B

RECRUITMENT LETTER

SCHOOL PSYCHOLOGY TRAINING IN TRAUMATIC BRAIN INJURY ASSESSMENT: CURRENT PRACTICES IN GRADUATE PROGRAMS

Dear School Psychology Graduate Trainer,

My name is Chris Powers, and I am in the School Psychology Program at the University of Dayton. I am writing to invite you to participate in a research project that I am doing for my master's thesis. Numerous popular media articles and news segments have recently focused on adverse outcomes of traumatic brain injuries (TBIs). Despite this, many school psychologists report feeling inadequately prepared to identify and intervene with students who have sustained TBIs.

WHAT IS THE PURPOSE OF THIS STUDY?

The present research study will address the gap in current research regarding how TBI assessment is taught at the graduate level in school psychology. Because of the identified need for more training and education in the area of TBI assessment, it is important to examine how this training is currently being addressed in graduate preparation programs. The purpose of this study is to examine and describe the techniques and measures school psychology graduate programs are teaching for the assessment of students with TBI.

WHAT WILL BE DONE IN THIS STUDY?

If you agree to participate in my thesis project, you will be contacted via phone at a time that is convenient to your schedule for an informal interview (15-30 minutes). The interview will consist of multiple questions related to your program's current practices in teaching TBI assessment to students and the content that is covered. Specific standardized assessments, ways in which graduate trainees demonstrate knowledge, and practicum requirements related to TBI will also be addressed. The phone interview will be recorded and analyzed using qualitative methods.

WHAT IF I WISH TO WITHDRAW OR NOT PARTICIPATE IN THE STUDY?

Your participation is completely voluntary. If you agree to participate, you are free to stop participating at any time, without penalty. You are also free to choose not to answer any question that you are uncomfortable with, without penalty.

HOW WILL THE INFORMATION FROM THE STUDY BE STORED?

All of your responses from the interview will be kept confidential. However, some responses may be used in future publications describing the graduate training program. All responses and interview audio will be kept on a password protected computer and only available to my advisor (Dr. Susan Davies) and myself. Your name will be coded as a number and will not appear in any data sets or publications.

WHAT ARE THE BENEFITS FOR PARTICIPATING IN THIS STUDY?
There are multiple benefits associated with participation in my project. These benefits may include: (a) contribution to the current knowledge of current practices within school psychology graduate programs related to TBI, (b) might gain an introspective view of your current training program's level of TBI training, and (c) assistance in the completion of my thesis project.

Thank you for considering participating in my thesis project. If you agree to participate, I will contact you by email to answer any questions, arrange an interview time, and provide you with a consent form and interview questions. Please feel free to contact me with any questions or concerns by phone (937) 974-2648 or by email at powersc5@udayton.edu.

Sincerely,

Chris Powers, M.S.
School Psychology Graduate Student

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APPENDIX C

LETTER OF CONSENT

Dear Participant,

This letter is a request for you to take part in a research project to assess the types of traumatic brain injury assessments taught to graduate trainees in school psychology. You are receiving this letter via email prior to the phone interview so you can read through the consent agreement in advance. Your consent to participate in the study will be given verbally at the beginning of the interview if you choose to do so. This project is being conducted by Chris Powers, M.S, in the Department of Counselor Education and Human Services at the University of Dayton under the supervision of Dr. Susan Davies, an associate professor and coordinator of the school psychology program. Your participation in this project is greatly appreciated and it will take approximately 15-30 minutes to complete the interview.

Your involvement in this project will be kept as confidential as legally possible. All data will be reported in the aggregate; no names of participants or their universities will be shared in presentations or publications. Interview audio will be recorded and transcribed. Your participation is completely voluntary. You may skip a question that you do not with to answer and you may discontinue at any time. University of Dayton Institute Review Board approval of this project is on file.

Thank you for your time. If you have any questions about this letter or the research project, please contact Chris Powers at (937) 974-2648 or by e-mail at powersc5@udayton.edu.

Thank you for your time and help with this project.

Sincerely,

Chris Powers, M.S.